



Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Center Creek

Waterbody Segment at a Glance:

County: Jasper
Nearby Cities: Joplin
Length of impairment: 11 miles
Pollutant: Zinc
Source: Tri-State Abandoned Mine Land



TMDL Priority Ranking: Medium

Description of the Problem

Beneficial uses of Center Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption.

Use that is impaired

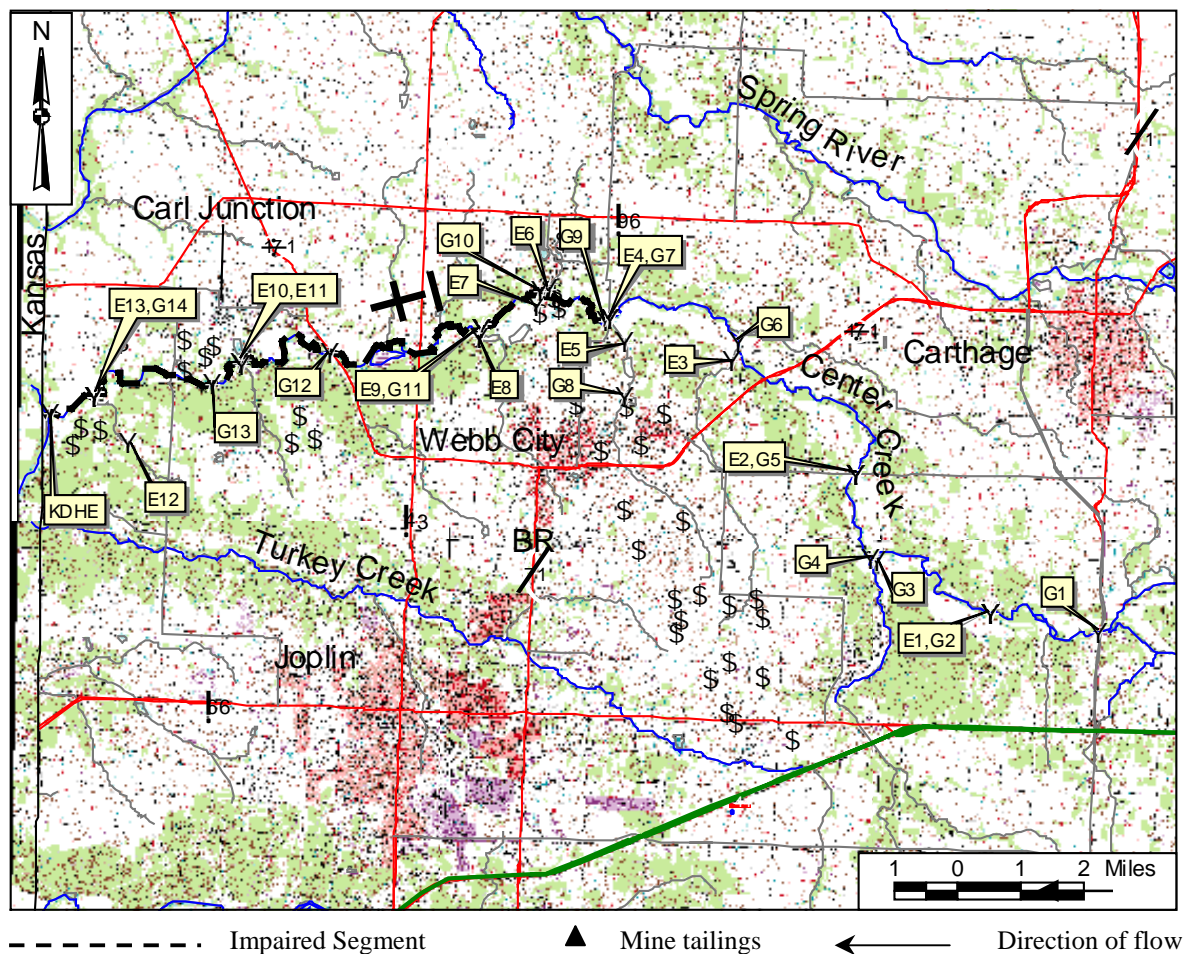
- Protection of Warm Water Aquatic Life

Standards that apply

- Missouri's Water Quality Standards can be found in 10 CSR 20-7.031 Table A. The applicable standard for acute/chronic levels of zinc is 340 µg/L (micrograms per liter or parts per billion) as dissolved metal.

Center Creek flows through the Tri-State Mining District. Joplin is located near the center of this district and mining for lead and zinc began in 1848 and lasted until 1957. Between 1848 and 1945, 50 percent of the zinc and 10 percent of the lead mined world-wide came from the Tri-State district. Mine drainage both in the form of surface flows and resurgence of groundwater from flooded mines contributes significant amounts of zinc to Center Creek. Upstream of the mining district (near Fidelity), the average dissolved zinc concentration in Center Creek is 7 µg/L. It is 124 µg/L at the Highway HH bridge, which is just within the upstream portion of the mining district, and rises to 366 µg/L well within the mining area at Smithfield. Recent studies by the U.S. Geological Survey also indicated that pore water, water within the sediment on the bottom of Center Creek, at some locations was toxic to aquatic life. The results of these toxicity tests correlated with amounts of zinc in the stream sediments and thus zinc is believed to be the toxic agent.

Map of Center Creek in Jasper County, Missouri, with Sampling Sites



Index to Sites

US-EPA

- E1 – Center Creek 2 miles below Fidelity
- E2 – Center Creek at Highway HH 1.5 miles below Grove Creek
- E3 – Stout's Branch near mouth
- E4 – Center Creek 0.1 mile above Mineral Branch
- E5 – Mineral Branch 0.5 mile above mouth
- E6 – Tributary to Center Creek at Oronogo, near mouth
- E7 – Malibu Pit resurgence
- E8 – Center Creek 1.5 miles below Oronogo Branch
- E9 – Tributary to Center Creek 1.5 miles below Oronogo, near mouth
- E10 – Center Creek at Carl Junction
- E11 – LBD Tributary to Center Creek at Carl Junction
- E12 – LBD Tributary to Center Creek 1 mile below Klondike mines
- E13 – Center Creek near Smithfield, 10 miles below Oronogo

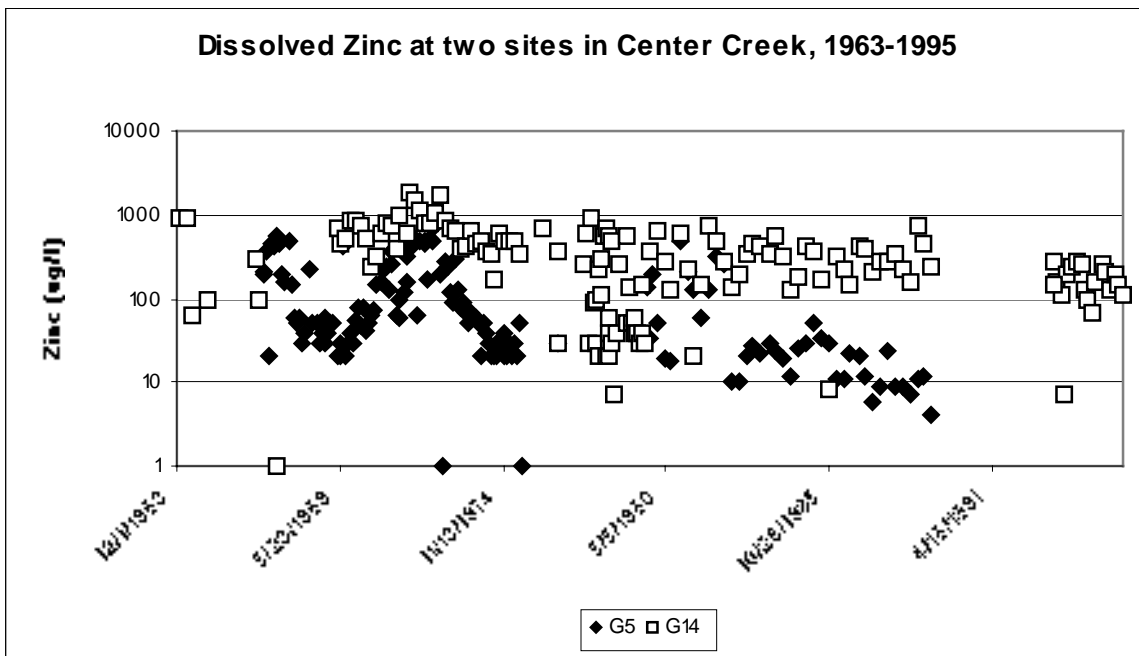
Index to Sites (cont.)

USGS

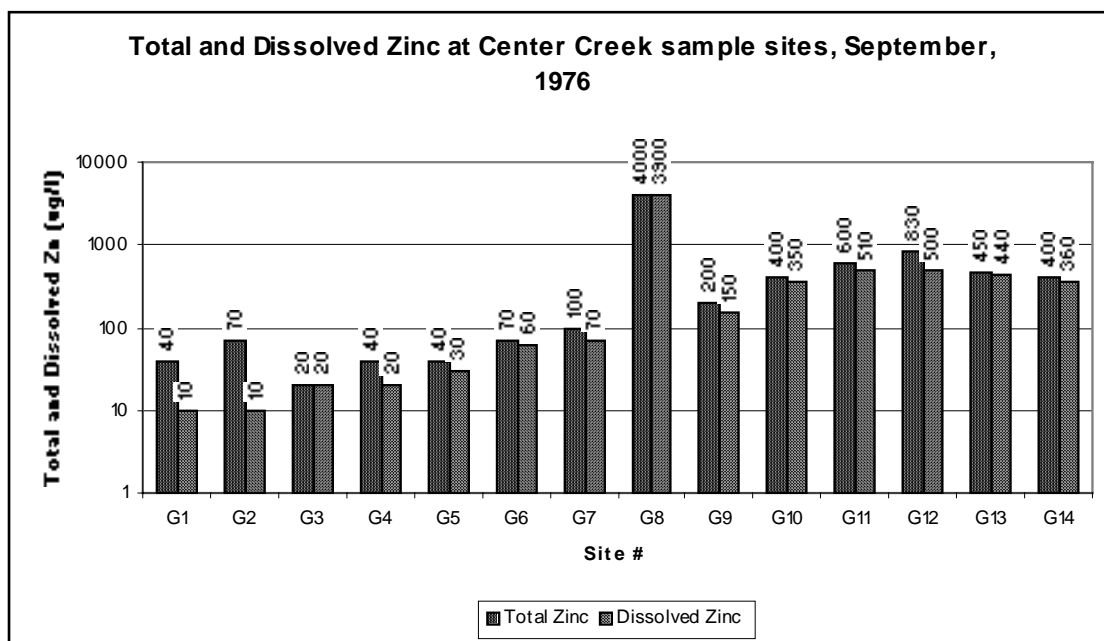
- G1 – Center Creek at Hwy Alt. 71 near Fidelity
- G2 – Center Creek 2.5 miles below Fidelity
- G3 – Center Creek 0.1 mile above Grove Creek
- G4 – Center Creek 0.1 mile below Grove Creek
- G5 – Center Creek at Hwy HH 1.5 miles below Grove Creek
- G6 – Center Creek 0.1 mile below Stout's Branch
- G7 – Center Creek 0.1 mile above Mineral Branch
- G8 – Mineral Branch 2 miles above mouth
- G9 – Center Creek 0.1 mile below Mineral Branch
- G10 – Center Creek 0.1 mile below Oronogo Branch
- G11 – Center Creek 1.5 miles below Oronogo Branch
- G12 – Center Creek 4.5 miles below Oronogo Branch
- G13 – Center Creek at Carl Junction 8 miles below Oronogo Branch
- G14 – Center Creek near Smithfield, 10 miles below Oronogo Branch

Kansas Department of Health and Environment

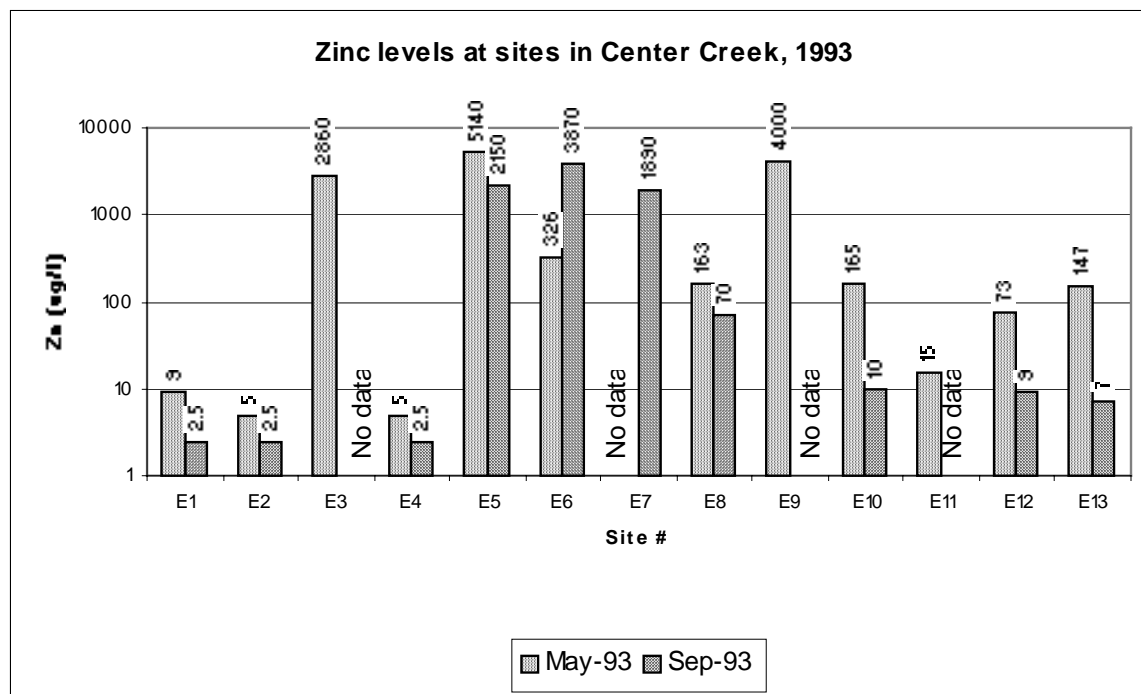
KDHE – Center Creek near Smithfield



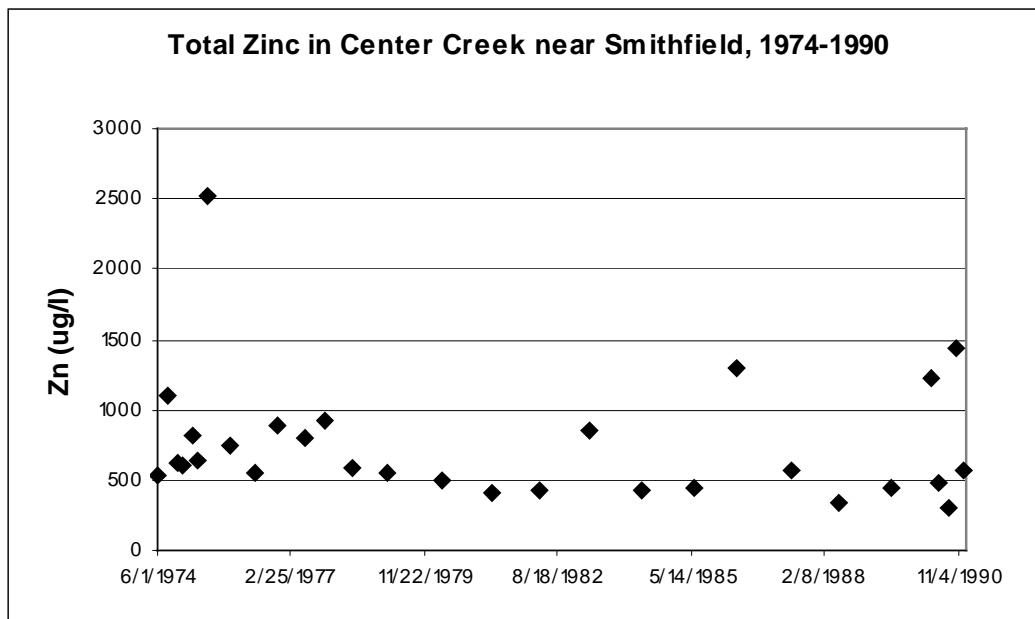
Source: U.S. Geological Survey



Source: U.S. Geological Survey



Source: U.S. Environmental Protection Agency



Source: Kansas Department of Health and Environment

For more information call or write:

Missouri Department of Natural Resources

Water Pollution Control Program

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1-800-361-4827 or (573) 751-1300 office

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Program Home Page: www.dnr.state.mo.us/wpscd/wpcp/index.html